

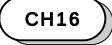
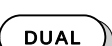
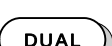
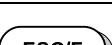
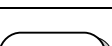
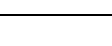
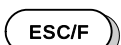
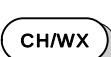
MARINE VHF RADIO TELEPHONE OPERATION MANUAL

STR-6000D



SAMYUNGENC CO.,LTD.

STR-6000D SUMMARY

KNOB/BUTTON		FUNCTIONS
PWR/VOL		Power On/Off/Speaker Volume Control
SQUELCH		SQUELCH Control
		Pressing and holding down this button for 3s will allow users to input the own ship ID in order to transmit the distress call. (※ Trial transmission is strictly forbidden !!)
		This converses to the current channel and Channel 16.
		This moves to DSC MENU (Refer to Page. 45)
 More than 1 s.		This moves to each setup MENU.(Refer to Page. 29)
		This works on reception, conversing to the current channel and Channel 16.
 More than 1 s.		This starts scanning onto the current SCAN mode. (Press again to stop)
		This operates as Escape in MENU but as Function button in the others.
		This converses to weather channel.
		At normal time, this alternates 25W and 1W in power output. In MENU, this is used as Enter (Select items and Input confirmation).
 		This is used to move CHANNEL and to move items in MENU. (Short pressing – 1 time, Long pressing – continuous operation).
		This changes the SCAN kinds.(ALL, TAG)
		This leads only to TAG-designated channels.
		This is for changes between nations. (ITU, USA, CAN)
		In scanning, scan the tag-designated channel .This is for setup and cancellation of TAG

*** How to mark and look for MENU**

1. Press Call/Menu button. Only 3(three) items of MENU can be simultaneously marked.
2. Press Up/Down buttons until the cursor is located at the wanted position.

Press ENT button to select any function.

3. Perform the wanted change and selection.
4. Press ENT button to confirm the change. If pressing ESC button, the current setup will stay unchanged.
5. Press ESC button to get out of the current MENU function.

*** How to put in numbers and alphabets**

1. Use Up/Down buttons to input numbers and alphabets and the changes will be made.
2. Press Down button to display numbers first and if pressing continuously, the display will go fast to the wanted value.
3. Press Up button to display alphabets first, if pressing continuously, the display will go fast to the wanted characters.
4. If there is any wrong input, press ENT button until '<' is shown and then press ENT button for correction.

CAUTIONS

Before supplying power, users are urged to read this operation manual with attention.

1. How to make Distress Call and stop

1-1. When any distress call is made, press  button for 3s until DISTRESS MESSAGE is seen, then the overall display unit will be flamed with a high level of alert sound. In transmitting any distress call, it should be made based on the duty person's judgment of the ship. As this test may cause a huge damage to neighboring ships or to rescue authorities, users MUST NOT make the test.

1-2. If the distress call is performed, the distress message will be automatically transmitted at repetitive intervals of 3m 30s ~ 4m 30s. This transmission repeats until the previous DSC made by the own station is received or any operation for stop is performed. If any transmission is mistakenly made, press  button to stop it. Even though the operation for stop is made, users need to contact Channel 16 to inform about the accidental transmission because the message was automatically transmitted.

1-3 When any distress call is received, please inform the person in charge of it.

2. Initial setup in installation

For the below items, please work on the initial setup when the equipment is installed, prior to the actual operation. Users can contact the maker or any agents who is able to work on the installation.

2-1 Voltage Checkout

Input Voltage of VHF Main Unit : Make sure that DC13.6V is ready.

2-2 Setup of ID Number

ID Number assigned for the own ship and other setups are required.

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Chapter 1. Summary

1.1. Summary

Purpose

This VHF Radio is designed to be fit for the VHF carriage requirements for both internationally engaged vessels and locally engaged vessels and is radio transceiver for ship mobile radio communication.

On top of the traditional voice communication, this equipment has an additional function of DSC alert which enables users to work on both normal-time communication and distress communication with the built-in DSC facility.

DSC Transmission and Reception

In order to use DSC function, any valid user MMSI should be input first.

What is DSC ?

Internationally standardized by IMO(International Maritime Organization) as a part of GMDSS(Global Maritime Distress and Safety System), DSC(Digital Selective Calling) is a semi-automatic way of making any MF/HF and VHF call.

1.2. Features

1. Including all the channels designated by the radio communication agreements of International Electro-technical Commission, it is designed to work on USA CHANNEL, WEATHER CHANNEL and CANADA CHANNEL. (Weather Alert Sense Function available, USA and Canada area applicable)
2. Compact design requires less space and easier installation.
3. The adoption of GRAPHIC LCD of wide range sight-angle allows users to have better eye-sights at various positions and easier operation. Clear channel display guarantees 4(four) levels of LCD Contrast available.
4. As the necessary operation methods are displayed on LCD according to marks and purposes by MENU modes, it is especially useful to operate DSC in addition to the existent operations.
5. As LCD and buttons' back light have a wide range of lighting, it does not disturb the night duty.
6. It is designed for the waterproof.
7. Besides the traditional voice communication, it is also available to work on communications for distress, emergency, safety and normal operations, using DSC function.
8. It offers much better convenience with GPS altitude/longitude and time indication functions. (When it is connected to GPS receiver)
9. It has a function for automatic input of position data(altitude/longitude) resulting from any navigational equipment such as GPS receiver. When transmitting any distress call, it is designed to insert the position data coming from any navigational equipment into the distress message for transmission.
And when receiving any sea area call, it is designed to make an automatic judgment to see if the own ship is positioned within the area, based on the position data coming from any navigational equipment.
10. It offers a function to select High(25W) or Low(1W) transmission power and an automatic setup.
11. It also has a function to link to any external radio output.
12. It is convenient to use a dedicated Channel 16/9 buttons that enable users to make an easy access to the priority channels.
13. It has the built-in Dual/Trial Watch function and Tag Scan function.
14. DSC function complies to Class D standards.
15. It has a Friend List function to easily call up to 20 persons with DSC whom the user want to list up.
16. Users can set up 3(three) favorite groups. (For Group DSC transmission)
17. It offers Group DSC transmission and it is also available to call all vessels with DSC function.
18. LL Position Polling function enables users to identify the positions of friends.

Chapter 2. Components

The equipment consists of the following specifications.

2.1 Standard components

Item	Model	Quantity	Remarks
VHF radio telecomm. Main nut	STR-6000D	1Set	Including HAND MIC
Operation manual		1 Volume	

2.2 Option

Item	Model	Remarks
Antenna	SAN-150 (RX/TX) 3dBi	Including CABLE/BRACKET

Chapter 3. Specifications

3.1 STR-6000D Main Unit

3.1.1 Generals

TX Frequency	156.025MHz ~ 157.425MHz	
RX Frequency	156.050MHz ~ 163.275MHz	
Channel Number	183 Channels ITU : 55 Channels USA : 57 Channels CANADA : 61 Channels WEATHER : 10 Channels	
Type of Emission	FM(16K0G3E), DSC(16K0G2B)	
Channel Interval	25KHz	
Communication Mode	Duplex and Semi Simplex	
Antenna Impedance	50 Ω (SO-239)	
Audio Output Impedance	4 Ω	
Frequency Stability	± 10 ppm(-15°C to +55°C)	
Voltage Supply	13.6V DC $\pm 10\%$ (Negative Ground)	
Consumed Currency(13.6V)	TX high	6A Maximum
	Maximum Audio	1.5A Maximum
Temperature Limits	-15° C to +55°C	
Dimension	85mm x172mmx170mm	
Weight	1.1Kg	

3.1.2 Transmitter Unit

Antenna Output	25W/1W(Low)
Frequency Deviation	± 10 ppm(-15°C to +55°C)
Starting Mode	Synthesizer Mode
Modulation Mode	Variable Reactance Frequency Modulation
Maximum Frequency Deviation	± 5.0 KHz
Occupancy Bandwidth	Within 16KHz
Microphone Input Impedance	2K Ω
Audio Frequency Response	300Hz ~ 3KHz, 6dB/Octave(+1 ~ -3dB)
Spurious Emission	More than 70dB
Adjacent Channel Power	Less than -70dBc
Audio Harmonic Distortion	Less than 10%(At m=3 : 300Hz, 500Hz, 1KHz)
Parasitic Modulation (Signal/Noise Ratio)	More than 40dB

3.1.3 Receiver Unit

Receiving Mode	Double Conversation Super Heterodyne
Intermediate Frequencies	1 st 21.7MHz
	2 nd 450KHz
Local Oscillating Frequency	Receiving Frequency -21.7MHz
Local Oscillating Mode	Synthesizer Mode
Receiving Sensitivity	0.32uV(20dB SINAD) 0.22uV(12dB SINAD)
Audio Frequency Responce	-6dB/octave
Squelch Sensitivity	0.22uV
Common Channel Reject Rate	-10dB ~ 0dB
Adjacent Channel Selection	More than 70dB
Spurious Response Reject Rate	More than 70dB
Inter Modulation Response Rate	More than 68dB
Spurious Emission	Less than 2nW (-56.9dBm)
Hum and Noise	Less Than -40dB
Audio Output Power (@13.6V DC)	4.5W/4Ω (distortion below 10%)

3.1.4 DSC Unit

Operating Frequency	156.525MHz
Mode	16KOG2B
Receiving System	Double-conversion Super-heterodyne
Intermediate Frequencies	1 st 10.7MHz
	2 nd 450KHz
Inter-modulation Rejection Ratio	More than 68dB(Less than 10^{-2} Bit error rate)
Adjacent Channel Selectivity	More than 70dB(Less than 10^{-2} Bit error rate)
Spurious Response Rejection Ratio	More than 70dB(Less than 10^{-2} Bit error rate)
Spurious Emission	Less than 2nW (-56.9dBm)
DSC Modulation Speed	1200baud(± 30 ppm)
DSC Modulation Method	FSK
DSC Modulation Index	Within $M = 2 \pm 10$ Hz
MARK Frequency	Within 1300Hz ± 10 Hz
SPACE Frequency	Within 2100Hz ± 10 Hz
Maximum Sensitivity Available	0.25uV (Less than 10^{-2} Bit error rate)
DSC Operation	ITU-R M.541-9 ITU-R M.689-2
DSC FILE Memory	DISTRESS Related Message Receiving :20 OTHERS Related Message Receiving :20

3.2 Channel list

3.2.1 ITU Channel

CH	TX (MHZ)	RX (MHZ)	Communication Type	Ship to Ship	Ship to Shore	Channel Name
01	156.050	160.650	Public Correspondence, Duplex	NO	YES	TELEPHO
02	156.100	160.700	Public Correspondence, Duplex	NO	YES	TELEPHO
03	156.150	160.750	Public Correspondence Duplex	NO	YES	TELEPHO
04	156.200	160.800	Port Operations, Duplex	NO	YES	P-OPS
05	156.250	160.850	Port Operations, Selected VTS Area	NO	YES	P-OPVTS
06	156.300	156.300	Inter-ship Safety	YES	NO	SAFETY
07	156.350	160.950	Port Operations, Duplex	NO	YES	P-OPS
08	156.400	156.400	Commercial (Inter-ship Only)	YES	NO	COMMERC
09	156.450	156.450	Recreational, VTS in Selected Area	YES	YES	CALLING
10	156.500	156.500	Commercial	YES	YES	COMMERC
11	156.550	156.550	Commercial, VTS in Selected Area	YES	YES	VTS
12	156.600	156.600	Port Operations, Selected VTS Areas	YES	YES	P-OPVTS
13	156.650	156.650	Inter-ship Navigation Safety (bridge-to-bridge)	YES	NO	BRIDGE
14	156.700	156.700	Port Operations, Selected VTS Areas	YES	NO	P-OPVTS
15(1)	156.750	156.750	Port Operation-1W Only	YES	YES	P-OPS
16	156.800	156.800	International Distress, Safety, and Calling	YES	YES	DISTRES
17(1)	156.850	156.850	State Controlled-1W Only	YES	YES	SAR
18	156.900	161.500	Port Operations, Duplex	NO	YES	P-OPS
19	156.950	161.550	Commercial, Duplex	NO	YES	DISTRES
20	157.000	161.600	Port Operations, Duplex	NO	YES	P-OPS
21	157.050	161.650	Port Operations, Duplex	NO	YES	P-OPS
22	157.100	161.700	Port Operations, Duplex	NO	YES	P-OPS
23	157.150	161.750	Public Correspondence, Duplex	NO	YES	TELEPHO
24	157.200	161.800	Public Correspondence, Duplex	NO	YES	TELEPHO
25	157.250	161.850	Public Correspondence, Duplex	NO	YES	TELEPHO
26	157.300	161.900	Public Correspondence, Duplex	NO	YES	TELEPHO
27	157.350	161.950	Public Correspondence, Duplex	NO	YES	TELEPHO
28	157.400	162.000	Public Correspondence, uplex	NO	YES	TELEPHO

CH	TX (MHZ)	RX (MHZ)	Communication Type	Ship to Ship	Ship to Shore	Channel Name
60	156.025	160.625	Public Correspondence, Duplex	NO	YES	TELEPHO
61	156.075	160.675	Public Operations, Duplex	NO	YES	P-OPS
62	156.125	160.725	Public Operations, Duplex	NO	YES	P-OPS
63	156.175	160.775	Port Operations, Duplex	NO	YES	TELEPHO
64	156.225	160.825	Public Correspondence, Duplex	NO	YES	P-OPS
65	156.275	160.875	Public Operations, Duplex	NO	YES	P-OPS
66	156.325	160.925	Port Operations, Duplex	NO	YES	P-OPS
67	156.375	156.375	Commercial, bridge to bridge	YES	NO	BRIDGE
68	156.425	156.425	Boat Operations, Recreational	YES	YES	SP-SP
69	156.425	156.475	Port Operations	YES	YES	P-OPS
70(2)	156.525	156.525	Digital Selective Calling for distress safety and calling	-----	-----	DSC
71	156.575	156.575	Port Operations	YES	YES	P-OPS
72	156.625	156.625	Inter-ship	YES	NO	SP-SP
73	156.675	156.675	Port Operations	YES	YES	P-OPS
74	156.725	156.725	Port Operations	YES	YES	P-OPS
77	156.875	156.875	Inter-ship	YES	NO	SP-SP
78	156.925	161.525	Non-Commercial, Duplex	NO	YES	SP-SOR
79	156.975	161.575	Commercial, Duplex	NO	YES	SP-SOR
80	157.025	161.625	Commercial, Duplex	NO	YES	SP-SOR
81	157.075	161.675	Port Operations, Duplex	NO	YES	P-OPS
82	157.125	161.725	Port Operations, Duplex	NO	YES	P-OPS
83	157.175	161.775	Public Correspondence, Duplex	NO	YES	TELEPHO
84	157.225	161.825	Public Correspondence, Duplex	NO	YES	TELEPHO
85	157.275	161.875	Public Correspondence, Duplex	NO	YES	TELEPHO
86	157.325	161.925	Public Correspondence, Duplex	NO	YES	TELEPHO
87	157.375	157.375	Port Operations	YES	YES	P-OPS
88	157.425	157.425	Port Operations	YES	YES	P-OPS

Note.

(1) 1W output is set on CH15 and CH17.

(2) Voice transmission on Ch70 is forbidden as a dedicated DSC channel.

Transmission on CH75 and CH76 is forbidden to avoid any harmful interference.

3.2.2 USA Channel

CH	TX (MHZ)	RX (MHZ)	Communication Type	Ship to Ship	Ship to Shore	Channel Name
01A	156.050	160.650	Port Operations, Selected VTS Areas	YES	YES	P-OPVTS
03A	156.150	156.150	US Government, Coast Guard	YES	YES	
05A	156.250	156.250	Port Operations, Selected VTS Areas	YES	YES	P-OPVTS
06	156.300	156.300	Inter-ship Safety	YES	NO	SAFETY
07A	156.350	156.350	Commercial	YES	YES	COMMERC
08	156.400	156.400	Commercial(Inter-ship Only)	YES	YES	CALLING
09	156.450	156.450	Recreational Calling Channel	YES	YES	CALLING
10	156.500	156.500	Commercial	YES	YES	COMMERC
11	156.550	156.550	Commercial, VTS in Selected Areas	YES	YES	VTS
12	156.600	156.600	Port Operations, Selected VTS Areas	YES	YES	P-OPVTS
13(1)	156.650	156.650	Inter-ship Navigation Safety (bridge to bridge) 1W Only	YES	NO	BRIDGE
14	156.700	156.700	Port Operations, Selected VTS Areas	YES	YES	P-OPVTS
15(3)	RX Only	156.750	Environmental, RX Only	-----	-----	ENVIRON
16	156.800	156.800	International Distress, Safety, and Calling	YES	YES	DISTRES
17(1)	156.850	156.850	State Controlled-1W Only	YES	YES	SAR COMMERC
19A	156.950	156.950	Commercial	YES	YES	COMMERC
20	157.000	161.600	Port Operations, Canadian Coast Guard, Duplex	NO	YES	P-OPS
20A	157.000	157.000	Port Operations	YES	YES	P-OPS
21A	157.050	157.050	U.S. Government, Canadian Coast Guard	YES	YES	P-OPS
22A	157.100	157.100	Coast Guard Liaison	YES	YES	COAST-G
23A	157.150	157.150	U.S. Government, Coast Guard	YES	YES	UNAUTHO
24	157.200	161.800	Public Correspondence, Marine Operator	NO	YES	TELEPHO
25	157.250	161.850	Public Correspondence, Marine Operator	NO	YES	TELEPHO
26	157.300	161.900	Public Correspondence, Marine Operator	NO	YES	TELEPHO
27	157.350	161.950	Public Correspondence, Marine Operator	NO	YES	TELEPHO
28	157.400	162.000	Public Correspondence, Marine Operator	NO	YES	TELEPHO

CH	TX (MHZ)	RX (MHZ)	Communication Type	Ship to Ship	Ship to Shore	Channel Name
61A	156.075	156.075	U.S. Government, Canadian Coast Guard	YES	YES	UNAUTHO
63A	156.175	156.175	Port Operations, VTS in Selected Areas	YES	YES	P-OPVTS
64A	156.225	156.225	U.S. Government, Canadian Commercial Fishing	YES	YES	UNAUTHO
65A	156.275	156.275	Port Operations	YES	YES	P-OPS
66A	156.325	156.325	Port Operations	YES	YES	P-OPS
67(1)	156.375	156.375	Commercial, bridge-to-bridge, 1W Only	YES	NO	BRIDGE
68	156.425	156.425	Boat Operations, Recreational	YES	NO	SP-SP
69	156.473	156.475	Boat Operations, Recreational	YES	YES	PLEASUR
70(2)	156.525	156.525	Digital Selective Calling-DSC	-----	-----	DSC
71	156.575	156.575	Boat Operations, Recreational	YES	YES	PLEASUR
72	156.625	156.625	Boat Operations, Recreational	YES	NO	SP-SP
73	156.675	156.675	Port Operations	YES	YES	P-OPS
74	156.725	156.725	Port Operations	YES	YES	P-OPS
77(1)	156.875	156.875	Port Operations-1W Only	YES	YES	P-OPS
78A	156.925	156.925	Boat Operations, Recreational	YES	NO	SP-SP
79A	156.975	156.975	Commercial	YES	YES	COMMERC
80A	157.025	157.025	Commercial	YES	YES	COMMERC
81A	157.075	157.075	U.S. Government, Environmental, Protection Agency Operations	YES	YES	UNAUTHO
82A	157.125	157.125	U.S. Government, Canadian Coast Guard	YES	YES	UNAUTHO
83A	157.175	157.175	U.S. Government, Canadian Coast Guard	YES	YES	UNAUTHO
84	157.225	161.825	Public Correspondence. Marine Operator	NO	YES	TELEPHO
84A	157.225	157.225	Public Correspondence. Marine Operator	YES	YES	TELEPHO
85	157.275	161.875	Public Correspondence. Marine Operator	NO	YES	TELEPHO
86	157.275	161.975	Public Correspondence. Marine Operator	YES	YES	TELEPHO
86A	157.325	157.325	Public Correspondence. Marine Operator	NO	YES	TELEPHO
87	157.375	161.975	Public Correspondence. Marine Operator	NO	YES	TELEPHO
87A	157.375	157.375	Public Correspondence. Marine Operator	YES	YES	TELEPHO
88	157.425	162.025	Public Correspondence. Marine Operator	NO	YES	TELEPHO
88A	157.425	157.425	Public Correspondence. Marine Operator	YES	NO	COMMERC

Note.

(1) 1W output is set on CH13, CH17, CH67 and CH77

(2) Voice transmission on Ch70 is forbidden as a dedicated DSC channel.

Transmission on CH15, CH75 and CH76 is forbidden to avoid any harmful interference.

3.2.3 CANADA Channel

CH	TX (MHZ)	RX (MHZ)	Communication Type	Ship to Ship	Ship to Shore	Channel Name
01	156.050	160.650	Public Correspondence, Duplex	NO	YES	TELEPHO
02	156.100	160.700	Public Correspondence, Duplex	NO	YES	TELEPHO
03	156.150	160.750	Public Correspondence, Duplex	NO	YES	TELEPHO
04A	156.200	156.200	Canadian Coast Guard, SAR	YES	YES	CA-CG
05A	156.250	156.250	Port Operations, VTS in Selected Areas	YES	YES	P-OPVTS
06	156.250	156.300	Inter-ship Safety	YES	NO	SAFETY
07A	156.350	156.350	Commercial	YES	YES	COMMERC
08	156.400	156.400	Commercial (Inter ship Only)	YES	NO	COMMERC
09	156.450	156.450	Recreational Calling Channel	YES	YES	CALLING
10	156.500	156.500	Commercial	YES	YES	COMMERC
11	156.550	156.550	Commercial, VTS in Selected VTS Areas	YES	YES	VTS
12	156.600	156.600	Port Operations, Selected Areas	YES	YES	P-OPVTS
13(1)	156.650	156.650	Inter-ship Navigation Safety (bridge-to-bridge) 1W Only	YES	NO	BRIDGE
14	156.700	156.700	Port Operations, VTS in Selected Areas	YES	YES	P-OPVTS
15(1)	156.750	156.750	Commercial-1W Only	YES	YES	COMMERG
16	156.800	156.800	International Distress, Safety and Calling	YES	YES	DISTRES
17(1)	156.850	156.850	State Controlled-1W Only	YES	YES	SAR
18A	156.950	156.950	Commercial	YES	YES	COMMERC
19A	156.950	156.950	Canadian Coast Guard	YES	YES	CA-CG
20(1)	157.000	161.600	Canadian Coast Guard, Duplex-1W Only	NO	YES	CA-CG
21	157.050	161.650	Port Operations, Duplex	NO	YES	CA-CG
21A	157.050	157.050	U.S. Government, Canadian Coast Guard	YES	YES	UNAUTHO
21B	RX Only	161.650	Port Operations, RX Only	-----	-----	P-OPS
22A	157.100	157.100	Canadian Coast Guard Liaison	YES	YES	CA-CG
23	157.150	161.750	Public Correspondence, Duplex	NO	YES	TELEPHO
24	157.200	161.800	Public Correspondence, Duplex	NO	YES	TELEPHO
25	157.250	161.850	Public Correspondence, Duplex	NO	YES	TELEPHO
25B	RX Only	161.850	Public Correspondence, RX Only	-----	-----	TELEPHO
26	157.300	161.900	Public Correspondence, Duplex	NO	YES	TELEPHO
27	157.350	161.950	Public Correspondence, Duplex	NO	YES	TELEPHO
28	157.400	162.000	Public Correspondence, Duplex	NO	YES	TELEPHO

28B	RX Only	162.000	Public Correspondence, RX Only	-----	-----	TELEPHO
-----	---------	---------	-----------------------------------	-------	-------	---------

CH	TX (MHZ)	RX (MHZ)	Communication Type	Ship to Ship	Ship to Shore	Channel Name
60	156.025	160.625	Public Correspondence, Duplex	NO	YES	TELEPHO
61A	156.075	156.075	U.S. Government, Canadian Coast Guard	YES	YES	UNAUTHO
62A	156.125	156.125	Canadian Coast Guard	YES	YES	CA-CG
64	156.225	160.825	Public Correspondence, Duplex	NO	YES	TELEPHO
64A	156.225	156.225	U.S. Government, Canadian Commercial Fishing	YES	YES	UNAUTHO
65A	156.275	156.275	Port Operations	YES	YES	P-OPS
66A	156.325	156.325	Port Operations	YES	YES	P-OPS
67	156.375	156.375	Commercial, SAR	YES	NO	COMMERC
68	156.425	156.425	Boat Operations, Recreational	YES	NO	SP-SP
69	156.475	156.475	Commercial Fishing Only	YES	YES	COMMERC
70(2)	156.525	156.525	Digital Selective Calling-DSC	-----	-----	DSC
71	156.575	156.575	Boat Operations, Recreational	YES	YES	PLEASUR
72	156.625	156.575	Inter-ship	YES	NO	SP-SP
73	156.675	156.675	Commercial Fishing Only	YES	YES	COMMERC
74	156.725	156.725	Commercial Fishing Only	YES	YES	COMMERC
77	156.875	156.875	Port Operations	YES	YES	P-OPS
78A	156.925	156.925	Boat Operations, Recreational	YES	NO	SP-SP
79A	156.975	156.975	Commercial	YES	YES	COMMERC
80A	157.025	157.025	Commercial	YES	YES	UNAUTHO
81A	157.075	157.075	U.S. Government, Canadian Coast Guard	YES	YES	UNAUTHO
82A	157.125	157.125	U.S. Government, Canadian Coast Guard	YES	YES	UNAUTHO
83	157.175	161.775	Canadian Coast Guard	YES	YES	CA-CG
83A	157.175	161.175	U.S. Government, Canadian Coast Guard	YES	YES	UNAUTHO
83B	RX Only	161.775	Canadian Coast Guard, RX Only	-----	-----	CA-CG
84	157.225	161.825	Public Correspondence, Marine Operator	NO	YES	TELEPHO
85	157.275	161.875	Public Correspondence, Marine Operator	NO	YES	TELEPHO
86	157.325	161.925	Public Correspondence, Marine Operator	NO	YES	TELEPHO
87	157.375	161.975	Public Correspondence, Marine Operator	NO	YES	TELEPHO
88	157.425	162.025	Public Correspondence, Marine Operator	NO	YES	TELEPHO

Note.

(1) 1W output is set on CH13, CH15, CH17 and CH20.

- (2) Voice transmission on Ch70 is forbidden as a dedicated DSC channel.
- (3) Transmission on CH75 and CH76 is forbidden to avoid any harmful interference
- * 1W output is set on CH66, CH77 and available to convert to 25W

3.2.4 WHEATHER CHANNEL

WEATHER CH	Rx(MHz)	Type	Remark
WX1	162.55.	NOAA WEATHER CHANNEL	NOAA WX
WX2	162.400	NOAA WEATHER CHANNEL	NOAA WX
WX3	162.475	NOAA WEATHER CHANNEL	NOAA WX
WX4	162.425	NOAA WEATHER CHANNEL	NOAA WX
WX5	162.450	NOAA WEATHER CHANNEL	NOAA WX
WX6	162.500	NOAA WEATHER CHANNEL	NOAA WX
WX7	162.525	NOAA WEATHER CHANNEL	NOAA WX
WX8	161.650	CANADIAN WEATHER CHANNEL	CANADA WX
WX9	161.775	CANADIAN WEATHER CHANNEL	CANADA WX
WX10	163.275	NOAA WEATHER CHANNEL	NOAA WX

3.3 POSITION INFORMATION INTERFACE

This unit is efficiently designed for convenient use, after receiving NMEA0183 FORMAT typed GPS information that will interfaces internally and input automatically with current own vessel's latitude and longitude value when distress call is occurred.

It is available to input the time when determined with position information and position by manual.

In case not receiving position data from electronic position-determined device, and/or in case position information conducted by manual input being delayed more than 4 hours, alarm is ringing. Any position information, which is not updated more than 231/2 hours should be deleting. Alarm will ring if GPS is not input more than 1 minute and alarm would stop when GPS is input again.

NMEA0283 input mode and type for this unit is as follows,

\$GPGGA,065501,3506.3023,N,12905.6429,E,1,07,001.3,00005,M,0000,M,,*41

\$GPGGA,032007,3505.10,N,12902.47,E,1,00,1,0,M,,M,,

\$GPGGA,044610.00,3505.2139,N,12904.2867,E,1,06,05.4,,M,,M,,*63

\$GPRMC,123456,A,3505.00,N,12902.00,E,1.0,0.0,221199,0.0,E*00

\$GPRMC,123456,A,3505.0000,N,12902.0000,E,1.0,0.0,221199,0.0,E*00

\$GPRMC,044610.00,A,3505.2139,N,12904.2867,E,00.2,229.1,180702,,*0D

\$GPGLL,3504.2892,N,12900.2503,E,024950.00,V*14

\$GPGLL,3505.09,N,12902.45,E*PCL

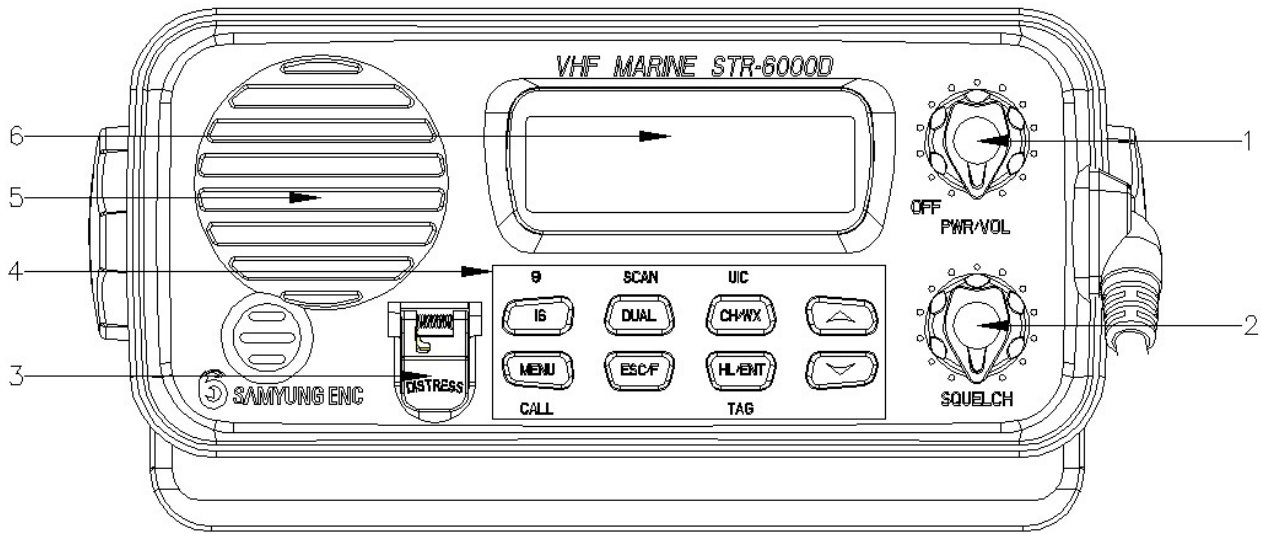
\$GPZDA,025220.00,17,04,1999,00,00*6B

\$GPZDA,050048,13,09,1998,+00

The chapter 4. How to operate.

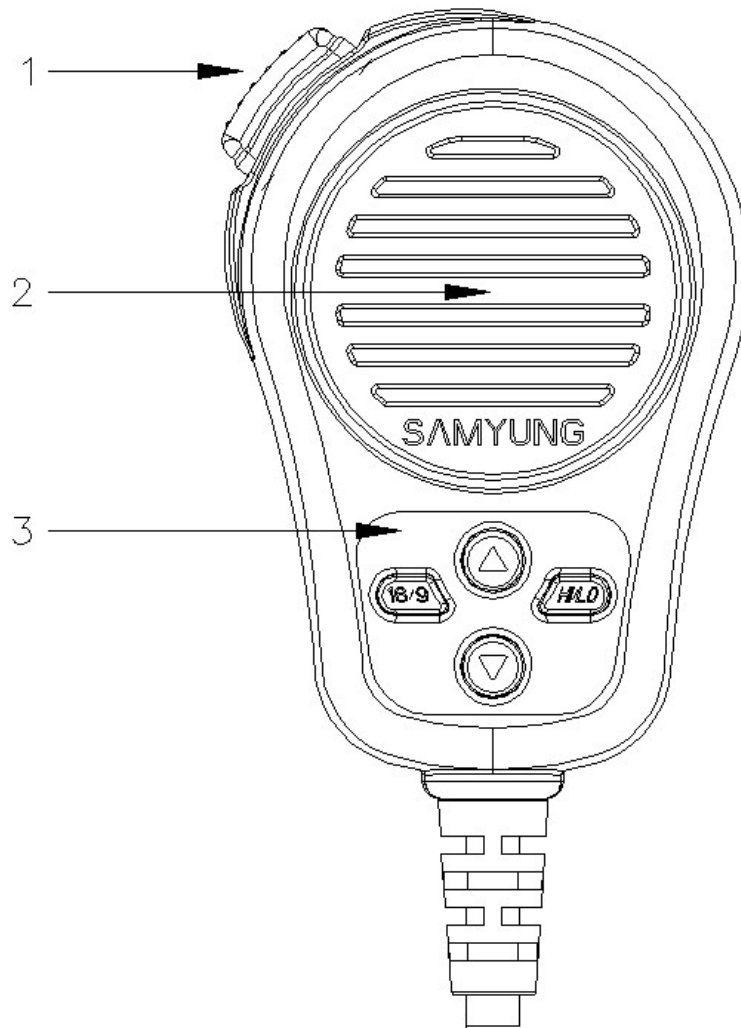
4.1 Unit Description.

4.1.1 Front Panel.



- 1) Power knob : To turn ON/OFF power and control volume.
- 2) SQUELCH knob : Squelch control.
- 3) DISTRESS button : When pushed for 5 seconds, it activates distress call.
- 4) Front Panel button.
 - CH16 : Convert to current channel and CH16.
 - DUAL : Inter converting and scanning function between current channel and CH16. Short pressing button links to DUAL. Long pressing button links to ALL SCAN.
 - CH/WX : Convert inter-channel between current channel and weather channel.
 - Menu : Short pressing button links to DSC call. Long pressing key links to menu display.
 - Esc/F : Escape in Menu mode, while Function button in others.
 - HL/ENT, TAG : Operated by using Enter button in menu mode.
While in normal times it is used for converting transmission power (1W, 25W).
 - ▲ (UP), ▼ (Down) : To change channel or convert Menu.(Short press button will work one time, Long press button will work continuously).
- 5) Internal speaker : 16Ω 2W.
- 6) LCD Front Panel Display Function.

4.1.2 Microphone



1) PTT : If pressed, it goes to transmission.

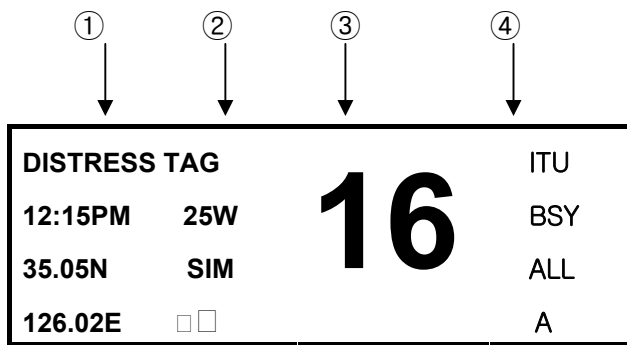
2) MIC : Condenser Microphone.

3) Key Pad :

- 16/9 : To convert to current channel and CH16.
- HI/LO : Operated by using Enter button in menu mode, while in normal times it is used for converting transmission power(1W, 25W)
- ▲ (UP), ▼ (Down) : To change channel or convert Menu(Short press key will work one time, Long press key will work continuously)

4.2 DISPLAY DESCRIPTION

4.2.1 LCD Screen Description



1) * **DISTRESS** : Indicating channel used for international distress purpose.

* **12:15PM** : Current time

* **35.05N** : Indicating latitude of position where is own vessel (GPS antenna position as current position)

* **129.02E** : Indicating longitude of position where is own vessel (GPS antenna position as current position)

2) * **TAG** : Indicating that Tag is set in current channel.

(ESC/F+TAG Key set up)

* **25W (01W)**: Indicating transmit power and while in reverse mode, it indicates transmit

* **SIM (DUP)**: Indicating if current channel is Duplex or Simplex

* ☐ : DSC function is available and when DSC signal is detected it goes to reverse.

* ☐ : Set up Weather channel.

3) * **16** : Indicating that current channel is No.16 .

4) * **ITU (USA,CAN, WEA)** : Indicating current setting channel.

* **BSY** : Indicating that current channel detects sensitivity signal

* **ALL (TRI, DUL)** : Indicating current using Watch or Scan function.

* **USA A** : In USA channel, it appears when it is simplex.

* **CAN A** : In CANADA channel, it appears when it is simplex.

* **CAN B** : In CANADA Channel, it appears with only receiving channel.

4.3 Menu tree and Instruction (Please press button for long time)

MENU SEL	1. FRIEND SEL	ADD NEW		Register a friend ID
	2. BACKLIGHT	LOW ~ HIGH(4step/2)		BACKLIGHT conversion
	3. CONTRAST	LOW ~ HIGH (4step/2)		CONTRAST conversion
	4. GPS SETUP	MANUAL SET DATA	TIME OST - 00:00	Time difference set up
			TIME FMT - 12HR,24HR	How to set displaying time
			TIME DISP - ON/OFF	Time displaying ON/OFF
			LL DISP - ON/OFF	Position displaying ON/OFF
			GPS ALERT - ON/OFF	GPS Alarm
			GPS EXPAN - ON/OFF	GPS Lat./Lon display extension
	5.DSC SETUP	USER MMSI – INPUT USER		Input Own ship ID
		GROUP SET - ADD NEW		Input Group ID
		INDIV RPV - AUTO/ MANUAL		Set automatic response
		LL REPLY - AUTO/MANUAL/ OFF		Set response to position
	6.RADIO SET	CH NAME		Chang channel name
		CH ON/OF		Checking channel is in use
		WX ALERT - ON/OFF		Weather channel alarm
		BEEP VOL - HIGH/ LOW /OFF		Volume of Beep
		WATCH MOD - ONLY16CH /16CH+9CH		Preferred channel to convert
		ANTENNA – CHECK OFF/ CHECK ON		ANTENNA check function
	7.DSC STOP	ON/OFF		Checking DSC in use
	8. FAC RESET	RESET YES/NO		Delete menu set up
	9.SYS TEST	PGM VER		Program version
		DIST KEY		Checking distress key
		PLL TEST		Checking received PLL condition
		DISPLAY		Check LCD
		SOUND BELL/URGENCY/ERROR/WARNING		Check alarm sound
	10.PRI SETUP	PRIVATE SET CH - PRI ON/PRI OFF		Checking PRIVAT channel in use

4.3.1 FRIENDS SEL

Use FRIENDS menu to save maximum 20 numbers of preferred friend's name and associated MMSI.

1) To add name on FRIENDS LIST

MENU SEL	16	ITU
> FRIENDS		
BACKLIGHT		TAG
CONTRAST		

① Long Pressing MENU links to select FRIENDS

FRIENDS LI	16	ITU
> ADD NEW		
SAM		TAG
STR580		

② To add new FRIENDS, press ENT after selecting ADD NEW

ENTER NAME	16	ITU
■ -----		
ENTER MMSI		TAG

③ Select adequate character or number of FRIENDS using ▲ or ▼ button each one time, and Enter button

ENTER NAME	16	ITU
SAMYUNG		
ENTER MMSI		TAG
123456789		

④ Repeat and execute 9 times and register all name of ANS, and also input associated MMSI 9 digit.

SAMYUNG	16	ITU
123456789		
> STORE?		TAG
CANCEL?		

⑤ Displayed New friends name and MMSI on screen. After moving cursor to STORE and pres ENT to add new name and MMSI into FRIENDS LIST.

Caution. FRIENDS LIST is available with maximum 20 numbers. If FRIENDS LIST is full, deleting previous FRIENDS in order to add a new FRIENDS

2) FRIENDS EDIT

FRIENDS LI	16	ITU
ADD NEW		
NAVMAN		TAG
> STR580		

STR580	16	ITU
> EDIT		
DELETE		TAG

① After selecting FRIENDS on Menu List, press ENT after selecting FRIENDS head to edit.

② Select EDIT using ▲ or ▼. Press ENT on choice of DELETE.

ENTER NAME	16	ITU
STR580		
ENTER MMSI		TAG
333333333		

STR580	16	ITU
333333333		
> STORE?		TAG
CANCEL?		

③ In case selecting EDIT, the cursor is flickering at the first character of the name, Press ENT after selecting a character or a digit matched with FRIEND name per a character once. Press ENT after editing FRIENDS name or MMSI.

④ Press ENT to save contents of a edit after moving the cursor to STORE. If not wanted to save, press ENT after moving the cursor to CANCEL. Then, it returns to Menu screen.

3) FRIENDS DELETION

FRIEND LI	16	ITU
ADD NEW		BSY
STR582		TAG
> STR6000D		

STR6000D	16	ITU
EDIT		BSY
> DELETE		TAG

① Select FRIENDS on Menu List. Press ENT after choosing a name of FRIENDS for deletion by pressing the button ▲ or ▼.

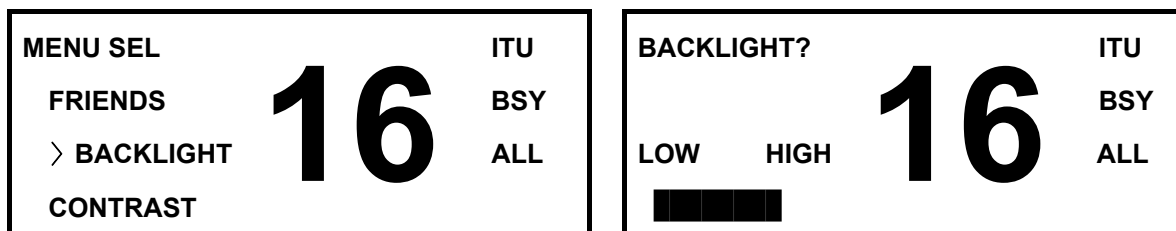
② Select DELETE.

DELETE	16	ITU
STR6000D		BSY
> YES		ALL
NO		

③ A chosen name is deleted from FRIENDS List and it reverses to FRIENDS List screen.

4.3.2. BACKLIGHT

Set up BACKLIGHT level to control brightness of LCD and Key Pad.

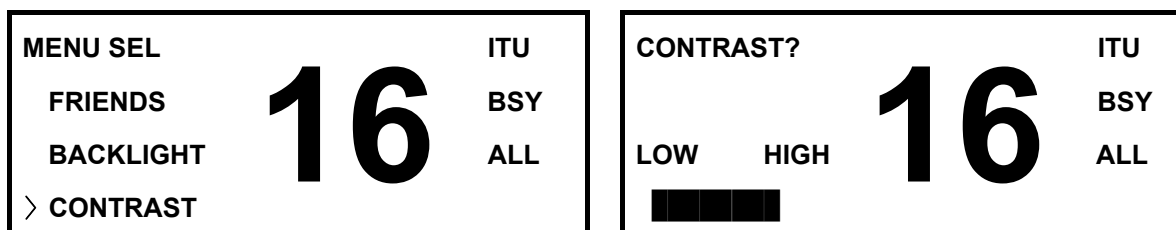


① Select BACKLIGHT on MENU List.

② Select an adequate level by pressing the button ▲ or ▼. The level can be adjusted with 4 steps. It goes MENU List back to keep set value when pressed ENT.

4.3.3 CONTRAST

Used to set up an adequate CONTRAST of LCD.



① Select CONTRAST on MENU List.

② Select an adequate level by pressing the button ▲ or ▼. The level can be adjusted with 4 steps. It goes MENU List back to keep set value when pressed ENT.

4.3.4 GPS SETUP

VHF radio updated the location and time of the ship automatically if there is working GPS receiver in a ship available, otherwise user has to input the location and time of the ship by manual using GPS SETUP function where there is no working GPS receiver in a ship available. This is very important information for using DSC.

1) Input location and time (UTC) by manual

MENU SEL	16	ITU
FRIENDS		
BACKLIGHT		TAG
> GPS SETUP		

GPS SETUP	16	ITU
> MANUAL		
SET DATA		TAG

① Select GPS SETUP on MENU List.

② Press ENT after selecting MANUAL in order to input the value of latitude and longitude by manual.

MANUAL LL	16	ITU
-- , -- , --N		
-- , -- , --E		TAG
M -- : -- UTC		

③ Input latitude, longitude and time in order by pressing the button ▲ or ▼. Press ENT after all information is input correctly.

Ship's position and longitude along with time are displayed on a screen. To display manual set-up, the values of latitude, longitude and time are displayed in reverse. The display mode is cancelled at once when connected GPS receiver and goes back to normal mode.

Caution : This function is only available when not connected with GPS Receiver

2) TIME OFFSET

Used to input time difference between UTC and Local Time.

GPS SETUP	16	ITU
MANUAL		
> SET DATA		TAG

SET DATA	16	ITU
> TIME OST		
TIME FMT		TAG
TIME DSIP		

① Select SET DATA after choosing GPS SETUP on MENU List.

② Select TIME OST(OFFSET) to input time difference between UTC and Local Time. It increases / decreases every 1 minute interval within Max. 23 hours and 59 minutes offset.

TIME OFFST	16	ITU
> +03:30		
04:20PMLOC		TAG

③ Time OFFSET can be used by Input time difference between UTC and LOCAL time. Input +, -, digits by pressing the button ▲ or ▼ or ENT.

In the example shown left, LOC means LOCAL TIME.

3) TIME FORMAT

Time can be displayed in 12 HR / 24 HR format.

GPS SETUP	16	ITU
MANUAL		
> SET DATA		TAG

SET DATA	16	ITU
TIME OST		
> TIME FMT		TAG
TIME DSIP		

① Select SET DATA after choosing GPS SETUP on MENU List.

② Select TIME FMT to set up TIME display format.

TIME FMT	16	ITU
12HR		
> 24HR		TAG
04:21AMLOC		

③ Press ENT after choosing either 12HR or 24 HR by pressing the button ▲ or ▼.

4) TIME DISPLAY OPTION

Time will be displayed in reverse if it is input manually. However, the displayed time can be ON / OFF on a screen if the location of a ship is updated through GPS receiver.

GPS SETUP	16	ITU
MANUAL		
> SET DATA		TAG

SET DATA	16	ITU
TIME OST		
> TIME FMT		TAG
TIME DSIP		

① Select GPS SETUP on MENU List.

② Select TIME DISP.

TIME DISP	16	ITU
ON		
> OFF		ALL

③ Press ENT after choosing either ON or OFF by pressing the button ▲ ▼. Time is not displayed on a screen in OFF choice.

5) LOCATION OPTION

Position of a ship is displayed in reverse all the time if it is input manually. However, the displayed location can be ON / OFF on a screen if the location of a ship is updated through GPS receiver.

GPS SETUP	16	ITU
MANUAL		
> SET DATA		TAG

SET DATA	16	ITU
TIME FMT		
TIME DISP		TAG
> LL DSIP		

① Select GPS SETUP on MENU List.

② Select LL DISP.

TIME OFFST	16	ITU
ON		
> OFF		TAG

③ Press ENT after choosing either ON or OFF by pressing the button ▲ or ▼. Time is not displayed on a screen in OFF choice.

6) GPS ALARM

GPS is normally set up as “ON” status and the alarm takes place when the GPS is disconnected with GPS receiver.

GPS SETUP	16	ITU
MANUAL		
> SET DATA		TAG

SET DATA	16	ITU
LL DISP		
COG/SOG		TAG
> GPS ALERT		

① Select GPS SETUP on MENU List.

② Select GPS ALERT.

TIME OFFST	16	ITU
> ON		
OFF		TAG

③ Press ENT after choosing either ON or OFF by pressing the button ▲ or ▼. Umbrella mark is displayed on a main screen.

7) GPS EXPANSION

It is a function to extend the display of Latitude and Longitude upto second level when it is connected with GPS. Then extended longitude and latitude will be displayed in the place of Channel name and Telephone, while Channel name and Telephone Icon will be shifted and displayed at the top of screen.

GPS SETUP	16	ITU
MANUAL		
> SET DATA		TAG

SET DATA	16	ITU
LL DISP		
GPS ALERT		TAG
> GPS EXPAND		

① Select GPS SETUP on MENU List.

② Select GPS EXPAND.

GPS EXPAND	16	ITU
ON		
> OFF		TAG

DISTRESS TAG	16	ITU
00:00AM 25W		
00.00N		TAG
000.00E		

③ Select OFF

④ It displays the lat/longitude in details.

SIM TAG	16	ITU
00:00AM 25W		
00,00,000N		TAG
000,00,000E		

- ⑤ This is the display that appears when the function of GPS expansion is on.
It displays the lat/longitude in details.

4.3.5 DSC SETUP

1) USER MMSI (OWN SHIP'S MMSI INPUT or MMSI GHKRDLS)

This activity has to be executed only once. The users have to input their own ship's MMS ID before using DSC function. MMS ID once set can be read out at any time.

GPS SETUP	16	ITU
> USER MMSI		
GROUP SET		TAG
INDIV RPY		

INPUT USER	16	ITU
MMSI		
123456789		TAG

- ① Select USER MMSI after selecting DSC SETUP on MENU List.
- ② If this is the first input of MMSI, a lot line is indicated. Use ▲, ▼ and ENT to input MMSI on the dot line.

- Store MMSID permanently by inputting USER MMSID once more
- Stored MMSID can be read out through this MENU anytime

2) GROUP SET (GROUP MMSI SET-UP and EDIT)

Use GROUP SETUP to produce, edit and delete friend's Group who need to be called frequently.

* Produce Group

DSC SETUP	16	ITU
USER MMSI		
> GROUP SET		TAG
INDIV RPY		

GROUP USER	16	ITU
> ADD NEW		
D GROUP		TAG

- ① Select DSC SETUP on MENU List.
- ② Select ADD NEW to add groups.

GGROUP NAME	16	ITU

GROUP MMSI		TAG
0-----		

GROUP NAME	16	ITU
SAMYUNG		
GROUP MMSI		TAG
0-----		

③ Use ▲,▼ and ENT to input GROUP NAME.

GROUP NAME	16	ITU
SAMYUNG		
GROUP MMSI		TAG
012345678		

④ Use ▲,▼ and ENT to input GROUP MMSI.

SAMYUNG	16	ITU
012345678		
> STORE?		TAG
CANCEL?		

⑤ If this is the first group edit, 9 dot lines appears. Otherwise, the existing group name is displayed. The above example shows that the group name is SAMYUNG and the group MMSI is 012345678.

⑥ If you input the group name and group MMSI, the above display will appear. STORE simply means storage while CANCEL does the input cancellation.

* GROUP NAME EDIT

GPS SET	16	ITU
ADD NEW		
> PUSAN		TAG
YOUNGDO		

PUSAN	16	ITU
> EDIT		
DELETE		TAG

① Select GROUP SETUP after choosing DSC SETUP on MENU List. Press ENT after moving the cursor to a group which needs modification by pressing the button ▲ or ▼.

② Press ENT key at EDIT to edit, then cursor moves to the first character and group name is displayed.

EDIT NAME	16	ITU
SAMYUNG		

SAMYUNG	16	ITU
051601668		

EDIT MMSID	TAG
051601668	

> STORE?	TAG
DELETE	

③ Input group name and MMSID by pressing the button ▲ or ▼. Press ENT to turn to next screen when the edit is finished.

④ Press ENT after placing the cursor at STORE to store the edit and turn to GROUP SET screen.

* GROUP NAME DELETION

GPS SETUP	ITU
ADD NEW	
> D GROUP	TAG
SAMYUNG	

D GROUP	ITU
EDIT	
> DELETE	TAG

① Select GROUP SETUP after choosing DSC SETUP on MENU List. The existed group names are displayed.

② Press ENT after moving the cursor to group name which needs deletion by pressing the button.

DELETE	ITU
D GROUP	
> YES	TAG
NO	

③ Press ENT on a choice of DELETE. Then the group name is deleted and the screen goes to GROUP SET back.

3) INDIVIDUAL/RPY

It responses to coming individual call automatically or manually.

Automatic response can make communication at once by converting required channel after sending acknowledged messages. In case of Manual response, ask him whether he will response to my call first.

DSC SETUP	ITU
-----------	-----

INPUT REPY	ITU
------------	-----

USER MMSI		
GROUP SET		TAG
> INDIV RPY		

> AUTO		
MANUAL		TAG

① Select INDIV/RPUY after choosing DSC SETUP on MENU List.

② Select AUTO to execute automatic response and choose MANUAL to response manually.

4) LL REPLY (Set-Up Auto-Reply for LL Polling request)

This function allows user to set up the reply when the own ship's value is called by coast station or other ships' stations.

There are three options as a response to be selected against LL Polling request.

AUTO: Automatic response to any LL Polling request from FRIENDS

MANUAL: Manual decision whether response to LL Polling from FRIENDS is to be made or not.

OFF : Ignore all LL Polling from FRIENDS

DSC SETUP		ITU
GROUP SET	16	
INDIV RPY		TAG
> LL REPLY		

LL REPLY		ITU
> AUTO	16	
MANUAL		TAG
OFF		

① Select LL REPLY after choosing DSC SETUP on MENU List.

② Press ENT after choose one of three options. Screen returns to MENU.

4.3.6 RADIO SET

1) CH NAME

MENU SEL		ITU
> RADIO SET	16	
DSC STOP		TAG
FAC RESET		

RADIO SET		ITU
> CH NAME	16	
CH ON/OFF		TAG
WX ALERT		

① Select RADIO SET on MENU List.

② Select CH NAME.

CH NAME	01	ITU
		TAG
TELEPHO		

TELEPHO	01	ITU
> EDIT		TAG
DELETE		

③ Press the button ▲ or ▼ to select wanted channel number.

④ Press ENT after choosing a channel, then screen changed that can edit CH NAME available. CH NAME can be changed when EDIT is chosen. CH NAME can be changed when DELETE is chosen.

EDIT NAME	01	ITU
▪ ELEPHO		TAG

EDIT NAME	01	ITU
TELEPHO		TAG
> YES NO		

⑤ Input new name after choosing EDIT. Possible to input 7 digits Max.

⑥ Press ENT after choosing YES to add new name of channel.

2) CHANNEL ON/OFF

Used to use current channel or stop the channel.

MENU SEL	16	ITU
> RADIO SET		TAG
DSC STOP		
FAC RESET		

RADIO SET	16	ITU
CH NAME		TAG
> CH ON/OFF		
WX ALERT		

① Select RADIO SET on MENU List.

② Select CH ON/OFF.

CHANNEL	01	ITU
CLOSE?		TAG
TELEPHO		

CLOSE CH	01	ITU
TELEPHO		TAG
> YES NO		

③ Press the button ▲ or ▼ until channel appears that wants to be closed.

④ Press ENT after choosing YES. The character of 'C' is displayed on the right bottom of screen and it means the channel was closed.

3) WX ALERT (WEATHER ALERT SET-UP)

NOAA serves various weather channels about USA and CAN channels. NOAA broadcasts Weather Alert of 1050Hz when expected serious weather such as storm or hurricane. This function is to be set to detect Weather Alert.

MENU SEL	ITU
> RADIO SET	16
DSC STOP	TAG
FAC RESET	

RADIO SET	ITU
CH NAME	16
CH ON/OFF	TAG
> WX ALERT	

① Select RADIO SET on MENU List.

② Select WX ALERT.

WX ALERT	ITU
> YES	16
NO	TAG

③ Press ENT after choosing YES to set up Weather Alert.

4) BEEP VOL

This is a function to change or turn off the level of signal.

MENU SEL	ITU
> RADIO SET	16
DSC STOP	TAG
FAC RESET	

RADIO SET	ITU
CH NAME	16
WX ALERT	TAG
> BEEP VOL	

① Select RADIO SET on MENU List.

② Select BEEP VOL.

BEEP VOL	ITU
----------	-----

③ Press ENT after choosing HIGH,

> HIGH		
LOW		TAG
OFF		

LOW or OFF.

5) WATCH MOD

Used to add CH9 after CH16 as a priority channel. When both CH9 and CH16 are selected, then 9CH is added on watch.

MENU SEL		ITU
> RADIO SET	16	
DSC STOP		TAG
FAC RESET		

RADIO SET		ITU
WX ALERT	16	
BEEP VOL		TAG
> WATCH MOD		

① Select RADIO SET on MENU List.

② Select WATCH MOD.

WATCH MODE		ITU
> ONLY16CH	16	
16CH+9CH		TAG

③ Press ENT after choosing ONLY16CH or 16CH+9CH.

4.3.7 DSC Receiving Control

It is function to control DSC receive. When it sets “ON”, DSC receive is available.

MENU SEL	16	ITU
DSC SETUP		
RADIO SET		TAG
> DSC STOP		

DSC FUNCT	16	ITU
> ON		
OFF		TAG

① Select DSC STOP on MENU and press ENT.

② Select ON and press ENT for DSC receiving.

4.3.8 Initializing - RESET

Get all set up initialized except all MMSID and FRIEND LIST set up.

MENU SEL	16	ITU
RADIO SET		
DSC STOP		TAG
> FAC RESET		

FAC RESET	16	ITU
SURE?		
> YES		TAG
NO		

① Select FAX RESET on MENU and press ENT.

② Select YES to reset and press ENT.

Note) Not available to delete MMSID, GROUP ID and FRIEND.

4.3.9 SYS TEST (System test)

It is function to execute system test and check.

- System check & Confirm Menu	→
- Program version & date	→
- For DISTRESS button check	→
- PLL test	→
- DISPLAY test	→
- SOUND test	→

SYS TESTER	16	ITU
> PGM VER		BSY
DIST KEY		ALL
PLL TEST		
DISPLAY		
SOUND		

1) PGM VER (Check program version & date)

- Display program version

PGM VER .E	ITU
------------	-----

- Display program version number
- Program renewal date

00.91	BSY
DATA 2004	ALL
10/08 1725	

Check program version and renewal date.

2) DIST KEY(Check DISTRESS button)

DISTRES	16	ITU
KEY STATE		TAG
NOT PRESS		

To check pressing status of DISTRESS button, press it for 3 seconds.

3) PLL TEST(Check PLL condition)

- Check the status from minimum frequency unto maximum frequencies at 25 KHz step.

PLL TEST	16	ITU
NUM : B4		TAG
165.000		
PLL OK		

4) DISPLAY(Check LCD status)

Test on LCD character

ABCDEFGHIJKLMNOPQRSTUVWXYZ
UVWXYZ0123456789abcdef
defghijklmnopqrstuvwxyz
=+<->!#&*?_%\$@~:,

5) SOUND(Check SOUND function)

- As a test for bell sound, it is executed item by item using ▲ or ▼ key and pressing ENT.

SYS SOUND	16	ITU
>BELL		TAG
URGENCY		
ERROR		
WARING		

4.4 DSC CALL Menu Structure & how to operate

Press  button for a while to investigate possible DSC call.

DSC CALL	1. INDIVIDUAL	Individual call
	2. LAST CALL	Call for DSC Call which is received last
	3. GROUP	Call a vessel which is set
	4. ALL SHIPS	Call all vessels
	5. CALL LOG	Call after confirming previous DSC Call (Max. 20)
	6. DIST LOG	Call after confirming previous DSC Distress (Max. 10)
	7. LL LOG	Request on FRIENDS's position information

4.4.1 INDIVIDUAL (Produce a routine call)

DSC CALL	ITU	
> INDIVIDUAL	16	
LAST CALL		TAG
GROUP		

INDIVIDUAL	ITU	
> ADD NEW	16	
PARKING		TAG
CHOIJH		

① For DSC mode, press CALL/Menu button short a while and then select INDIVIDUAL.

② Select ADD NEW to call other station which is not listed on Friends List. Select a station on Friends List if wanted to call to one on Friends List.

NEW MMSID	ITU
151601688	16

0516016680	ITU	
INDIVIDUAL	16	
ROUTINE		TAG
SET CH?		

③ Select ADD NEW and press ENT, and press ENT after input USER MMSI.

④ Select working channel by using ▲ or ▼ button and press ENT. (Not available to select Duplex channel and automatically exclude from channel selection.).

051601668	ITU	
INDIVIDUAL	16	
ROUTINE		TAG
SEND? :		

⑤ Press ENT for trying a call.

* To convert screen status when calling

0516016680	16	ITU
INDIVIDUAL		
ROUTINE		TAG
CALLING... :		

① This shows the calling is in the middle of being made.

0516016680	16	ITU
INDIVIDUAL		
ROUTINE		TAG
WAIT ACK		

② This shows it is waiting for the acknowledge of the other party.

INDIV ACK	16	ITU
0516016680		
PRESS PTT		TAG
ESC ->EXIT		

③ Press PTT to start communication if there's a response to the call. Try to call again if there's no response.

* Re-transmit a INDIV call

STR580	16	ITU
SEND AGAIN		
> YES		TAG
CANCEL		

1. Radio asks for retrial of calling unless there is response to call within one (1) min.
2. Select YES for retrial and press ENT.
3. Radio repeat this twice. If there's no response for the call, radio will get back to normal operation status.

* Acknowledgement for received individual call (ACKNOWLEDGEMENT)

Press ENT to send Acknowledgement and press ESC for cancellation.

Acknowledgement to the received call can be transmitted automatically within 10 sec.

4.4.2 LAST CALL (Call for received call recently)

This is frequently used.

DSC CALL	16	ITU
INDIVIDUAL		
> LAST CALL		TAG
GROUP		

STR580	16	ITU
INDIVIDUAL		
ROUTINE		TAG
12:30AM UTC		

① Press CALL/MENU button for DSC mode and it selected LAST CALL automatically. Press ENT for check recent call's detail.

STR580	16	ITU
INDIVIDUAL		
ROUTINE		TAG
> SET CH?		

② Press ENT to convert a screen which is able to set a channel. Able to select a channel by using ▲ or ▼ button.

STR580	16	ITU
INDIVIDUAL		
ROUTINE		TAG
> SEND?		

③ Select working channel and then press ENT

STR580	16	ITU
INDIVIDUAL		
ROUTINE		TAG
CALLING...		

④ Radio asks for transmitting DSC call. Press ENT for the call.

STR580	16	ITU
INDIVIDUAL		
ROUTINE		TAG
WAIT ACK		

⑤ This shows the calling is in the middle of being made.

⑥ This shows it is waiting for the acknowledge of the other party.

STR580	16	ITU
SEND AGAIN		
> YES		TAG
CANCEL		

⑦ This shows it asks user again to see if user wants a recall in case of no reply. If user wants it, select "YES". If not, select "CANCEL".

4.4.3 GROUP CALL(Group Call)

DSC CALL	16	ITU
INDIVIDUAL		
LAST CALL		TAG
> GROUP		

GROUP SEL	16	ITU
> D GROUP		TAG

① Press CALL/MENU button short a while for DSC mode and then select GROUP.

② Press ENT after choosing group name. GROUP MMSI should be set before group calling. Then press ENT to call.

D GROUP	16	ITU
033333333		
ROUTINE		TAG
SET CH ?		

GROUP	16	ITU
033333333		
ROUTINE		TAG
SEND ?		

③ Choose the transmission channel and then press ENT.

④ This asks user to see if user wants a transmission. Press ENT to make a call.

D GROUP	16	ITU
033333333		
ROUTINE		TAG
CALLING...		

⑤ This shows calling is being made. After calling, it will go back to the initial display.

4.4.4 ALL SHIPS (Call all vessels)

DSC CALL	16	ITU
LAST CALL		
GROUP		TAG
> ALL SHIPS		

ALL SHIPS	16	ITU
> URGRNCY		
SAFETY		TAG
ROUTINE		

① Press CALL/MENU button for assessing DSC mode and then select ALL SHIPS.

② Select URGENCY or SAFETY or ROUTINE.

ALL SHIPS	16	ITU
URGENCY		
> YES		TAG
NO		

③ Select YES to call.

ALL SHIPS	16	ITU
URGENCY		
CALLING...		TAG

④ This shows a calling is being made. After calling, it goes back to the initial display.

4.4.5 CALL LOG (Call by Call Log)

Call Log saved 20 of received call in order with their contents and therefore it is efficiently able to call one of them.

DSC CALL	16	ITU
GROUP		
ALL SHIPS		TAG
> CALL LOG		

① Press CALL/MENU for DSC mode and then select CALL Log.

STR580	16	ITU
INDIVIDUAL		
ROUTINE 01		TAG
12:30PMLOC		

② Search wanted call received by ▲ or ▼ button. Radio stores latest call as number 01.

STR580	16	ITU
INDIVIDUAL		
> CALL BACK		TAG
DELETE		

③ Press ENT if found received call, and then select Call BACK to execute call. Select DELETE if wanted to delete a log of its content.

STR580	16	ITU
INDIVIDUAL		
ROUTINE		TAG
> SET CH?		

④ Press ENT for transmitting after select working channel.

STR580	16	ITU
INDIVIDUAL		
ROUTINE		TAG
CALLING...		

⑤ This shows that a call is being made.

STR580	16	ITU
SEND AGAIN		
> YES		TAG
CANCEL		

⑥ This asks user to see if user wants a retransmission in case of failure, If want, select "YES", if not, select "CANCEL".

4.4.6 Call using disaster log(DIST LOG)

Distress log saves 20 calls latest received related with disaster to transmit a call easily. Voice communication should be made by CH16 first as follows;

DSC CALL	16	ITU
ALL SHIPS		
CALL LOG		TAG
> DIST LOG		

03 10:05 U	16	ITU
STR580		
35'50N		TAG
130.05E		

① Press CALL/MENU shortly to get into DSC mode and then select DIST LOG.

② Two displays will appear by turns at the intervals of 1.5 second. The first display shows the MMSI number of a ship in disaster and the latest received distress call is stored as No.1

DISTRESS	16	ITU
UNDEFINE		TAG
012345678		

STR580	16	ITU
INDIVIDUAL		
> CALL BACK		TAG
DELETE		

③ The second display shows what kind of the disaster the ship is in and the MMSI number of the said ship. Choose the disaster log wanted for call and then press ENT.

④ Select CALL BACK to perform the call. If user wants to delete the log with these contents, choose DELETE.

STR580	16	ITU
INDIVIDUAL		
ROUTINE		TAG
SET CH?		

123456789	16	ITU
INDIVIDUAL		
ROUTINE		TAG
CALLING...		

⑤ Choose any operating channel and then press ENT for transmission.

⑥ This shows a call is being made.

STR580	16	ITU
SEND AGAIN		
> YES		TAG
CANCEL		

⑦ This shows it asks user again to see if user wants a recall in case of failure. If user wants a recall, select "YES". If not, select "CANCEL".

4.4.7 Request a call of friend's position (LL REQUEST)

DSC CALL	16	ITU
CALL LOG		BSY
DIST LOG		ALL
> LL REQ		

① Press CALL/MENU shortly to get into DSC mode and then select LL REQ.

LL REQUEST	16	ITU
> STL6000D		BSY
STR580		ALL
STR680		

② Select FRIENDS of whose position user wants to know and then press ENT. The below screen will follow.

STR580	16	ITU
LL REQUEST		ALL
CALLING...		

③ This shows a calling is being made.

STR580	16	ITU
LL REQUEST		TAG
WAIT ACK		

④ This shows it is waiting for the acknowledge of the other party.

R:LL REQ	16	ITU
STR580		ALL
35'25.05N		
127'05.55E		

⑤ This is the display when a calling has been received. The name of the other party and the position data are indicated.

STR580	16	ITU
SEND AGAIN		TAG
> YES		
CANCEL		

⑥ If user wants a retransmission, choose "YES", If not, choose "CANCEL".

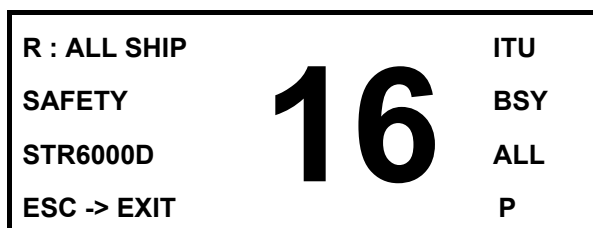
4.5 Receiving DSC call

Receives several kinds of DSC call from a vessel within same area.

- Disaster Receiving
- All vessels
- Individual call
- Group call
- Geographic territory
- Position request

Reverted DSC and alarm sound, which is able to hear when receiving.

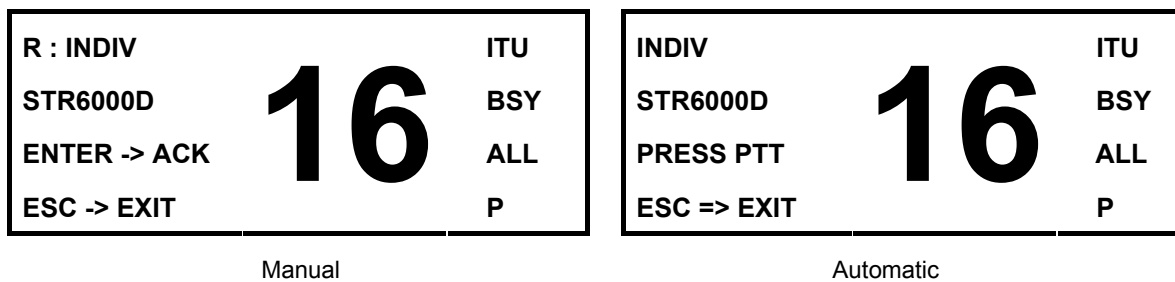
4.5.1 Receiving all vessel's call (ALL SHIPS CALL)



1) Press any of key except ENT and ESC to cancel alarm sound when received DSC for all vessels. Selects channel 16 automatically. Displays a category and USER MMSI on screen. Displays Friend name instead of MMSI number if User MMSI is one of Friend List.

2) No need Acknowledgement. Press PTT button for voice communication with channel 16. Received call is saved on Call Log.

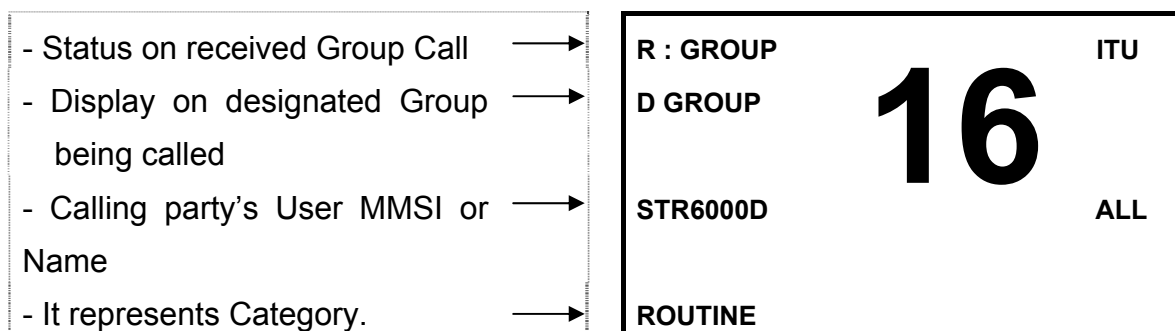
4.5.2 Receiving all vessel's call (INDIVIDUAL CALL)



1) Press any keys except ENT and ESC key to make a stop of alarm when received individual call. Available to connect a channel through automatically received DSC according to menu setup. Individual call has always its routine category. If received USER MMSI is one of Friends List, it displays the name, which is registered on Friend List.

2) Caller responses to your Acknowledgement through voice communication with designated channel. Unless voice communication does re-start first, you may send voice communication by pressing PTT. The received calling date will be stored at Call Log.

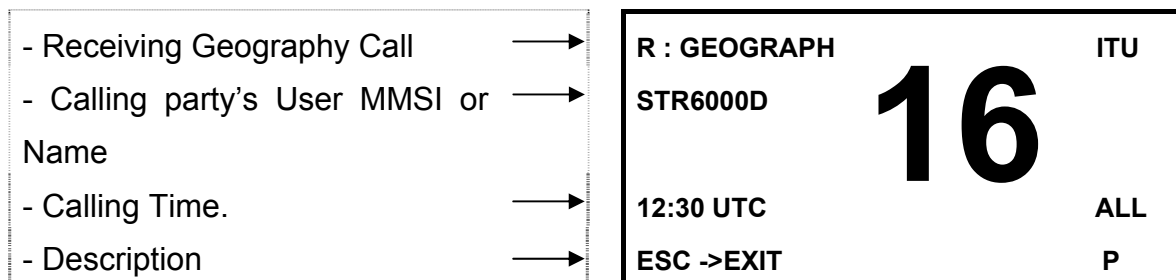
4.5.3 GROUP CALL



1) When received Group Call, press any keys except ENT, ESC to stop alarm. Channel is changed to the designated channel on the automatically received DSC Call. Name of group is one of three groups name, which avails to set up.

2) It does not need to send Acknowledgement, if wanted, it may be initiated with voice communication by pressing PTT on designated channel. The received calling date will be stored at Call Log.

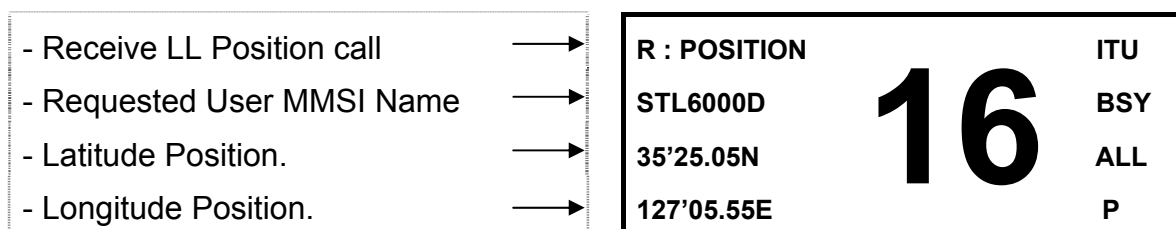
4.5.4 GEOGRAPHY CALL



GEOGRAPHY CALL is received within the specific areas.

- 1) When received GEOGRAPHY Call, press ant buttons except ENT, ESC to stop the alarm. Channel is changed to the designated channel on the automatically received DSC Call. Time and USER MMSI or Name is displayed on the screen.
- 2) Go through monitoring the specified channel from calling vessel.

4.5.5 LL POSITION



It displays, when GPS position data is received against your request on LL position to your associate in fleet.

4.6 DISTRESS CALL

4.6.1 Transmit the distress call

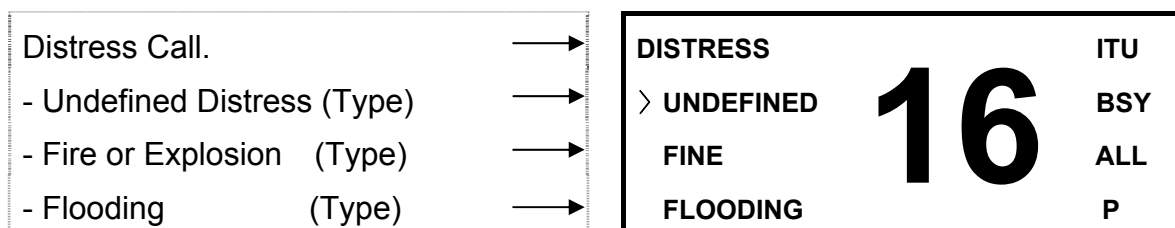
1) Open the cover marked “DISTRESS”.

If you have a sufficient time, go to item “2”, otherwise go to directly item “3”.

2) Press DISTRESS button for 3 seconds till the distress call is shown.

Press ENT key looking through following list, which suits the present status.

- UNDEFINED – undefined distress
- FIRE – explosion
- FLOODING
- COLLISION
- GROUNDING
- LISTING
- SINKING
- ADRIFT
- ABANDON
- PIRACY
- OVERBOARD



* Press DISTRESS button for 5 seconds in case of no time to select type of the distress. It automatically links to the distress call. (Type of the distress is called as UNDEFINED)

3) Press Distress button for about 5 seconds until “distress sending” message is to be seen.



HOLD DISTR	ALL
ESS KEY 2S	

SENDING !!	ALL
-------------------	------------

① Press DISTRESS KEY and hold down for 3 seconds to start the distress call. If user wants to cancel it, press ESC.

② This shows a distress calling is being made.

DISRESS	16	ITU
SEND! WAIT		
PRESS ESC		TAG
TO CANCEL		

③ This shows a distress call is being transmitted. If user wants to cancel it, press ESC.

Display part starts flickering, while alarm sound starts ringing loudly. Distress call is transmitted in 5 consecutive times. Until distress acknowledgement is received or distress transmit is cancelled by manual, it transmits irregularly from 3.5 to 4.5 minutes. It selects CH16 automatically and can listen voice from distress center or other vessels.

4.6.2 DISTRESS CALL

- Display on Distress Call	→
- Distress Call Time	→
- Latitude Position of distress ship	→
- Longitude Position of distress ship	→

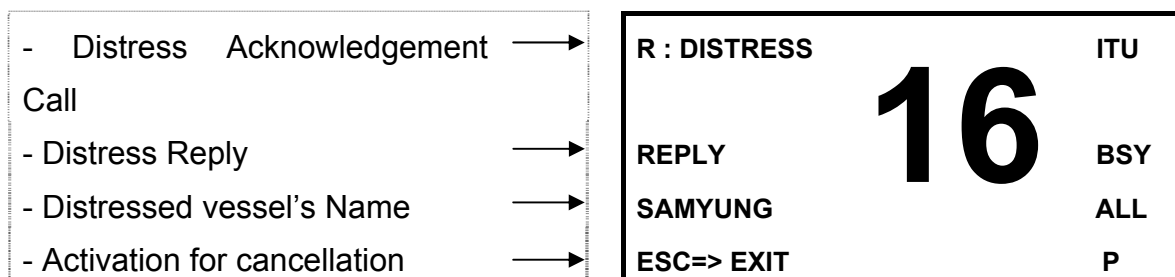
R : DISTRESS	16	ITU
12:30 UTC		
88°05.00N		ALL
125°45.00W		

- Display on Distress call	→
- MMSI or Name of distress ship	→
- Undefined distress (Type)	→
- Activation for cancellation	→

R : DISTRESS	16	ITU
SAMYUNG		
UNDEFINED		
ESC-> EXIT		ALL

- 1) When received distress call, distress alarm is ringing. To stop alarming press any other button except ESC and ENT. No need to transmit distress acknowledgement.
- 2) Channel is automatically changed to Channel 16, and it displays detail contents of distress on screen. If wanted to connect voice communication, press PTT, then two information related to distress is displayed on screen. Two screens are changed in about 1.5 seconds interval. First screen displays time and position. Second screen displays USER MMSI or Name where it is registered on FRIENDS LIST.

4.6.3 DISTRESS ACK or REPLY



When received distress reply call, alarm is ringing. To stop alarming press any other button except ESC and ENT, and try to call voice communication with calling vessel. Operator should pay attention to Channel 16 constantly and get ready to support. To distress acknowledgement call sent by coastal station, transceiver should automatically cancel distress transmit mode and goes to Channel 16. To make voice communication avail with coastal station, press PTT. (DISTRESS ACK)

Chapter 5. INSTALLTION

5.1 Dismantling package and inspection

When dismantling the package, please treat with great care in checking the contents with order specification. Please observe external surface whether it is damaged during transportation or not and if there find damaged parts, then install after proper treatment made.

This machine can be installed without technical difficulties, but it needs to keep basic installation guide lines described hereunder, which helps preserve optimum performance as it is in the factory.

5.2 Selection of Installation Position for Main Unit of STR-6000D

Installation position is selected according to following instruction.

1. Select the place where there is space enough to operate, repair and enable routine maintenance and efficient ventilation.
2. Select the place where there is not directly exposed to rain and sea water. Dry area is the best place for installing electronic equipment
3. Select the place where there is not directly exposed to sunray and avoid from heating element.
4. Select the place where there is of little vibration.
5. Select the place where there is of little electrical interference.

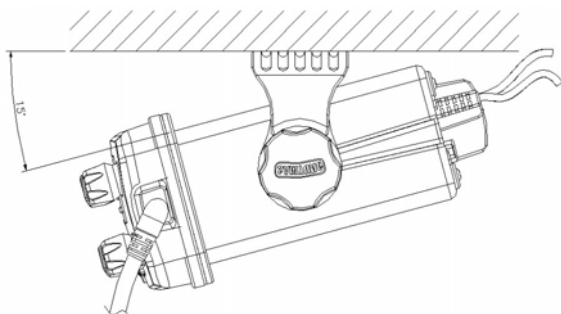
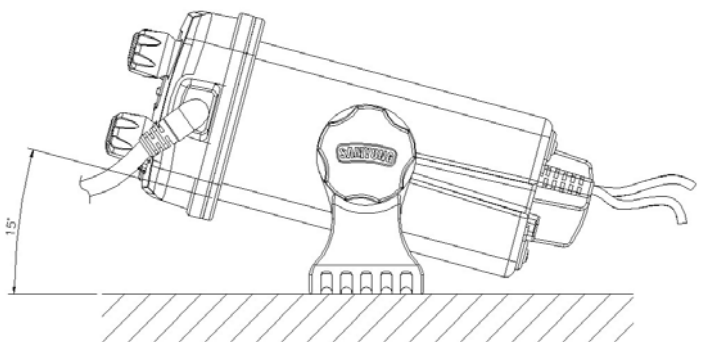
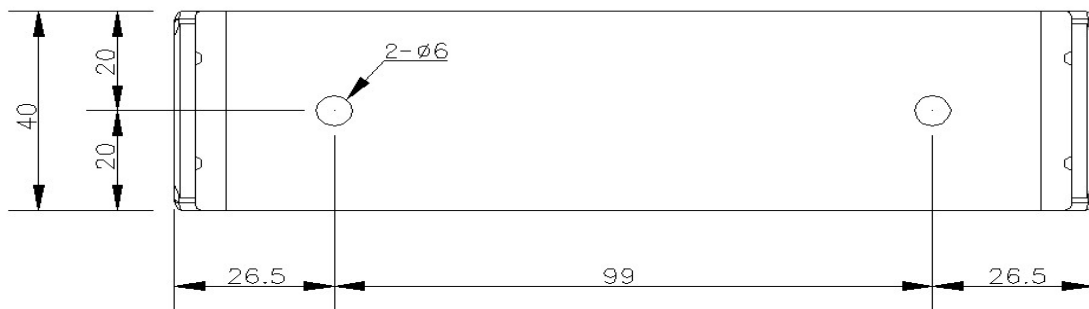
5.3 Installation for main unit of STR-6000D

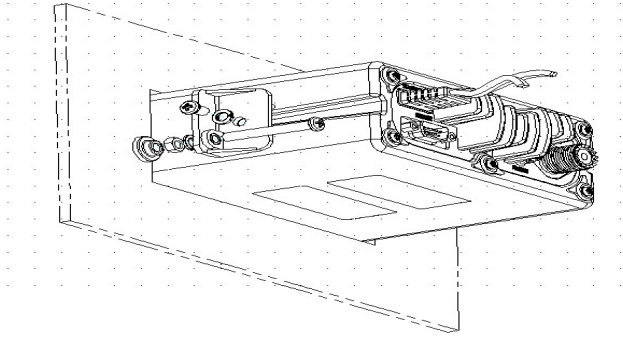
Installation for Main Unit is to be installed referring to following drawing.

1. Fix the support plate by using screw to table, ceiling or wall.

When pull the machine into the wall, cut out the wall size 147 x 59 first and flush it into the wall. (Refer to Drawing No. 04110353)

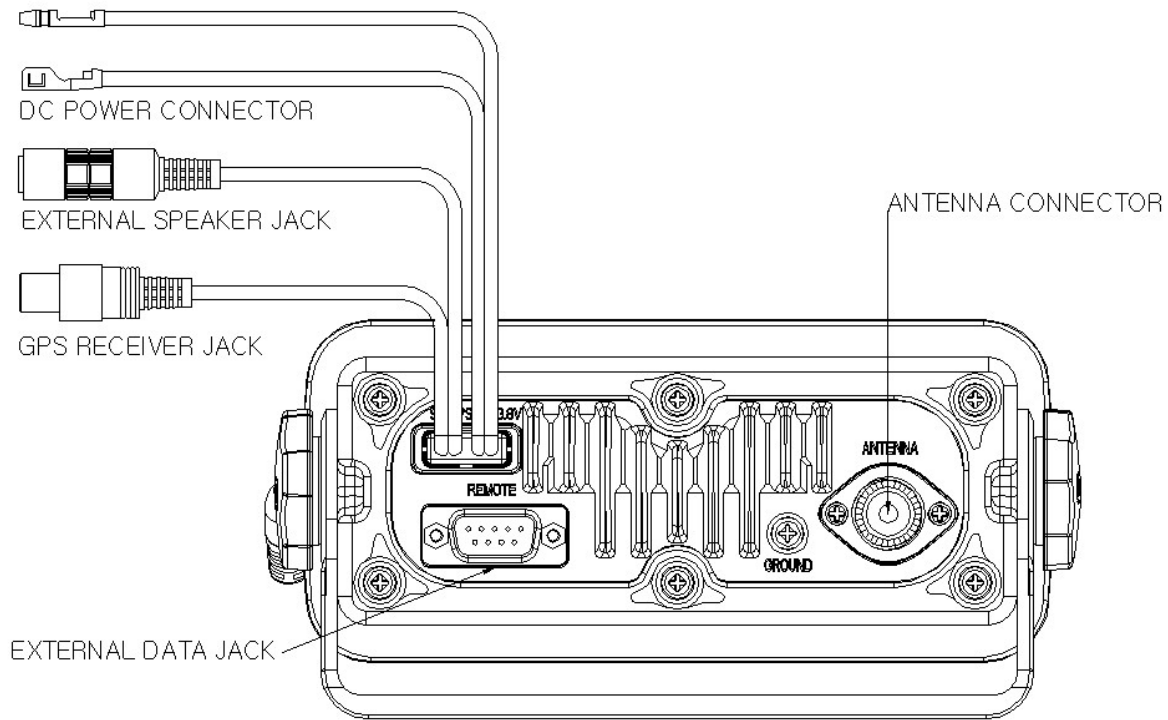
2. Assemble the unit to the support using handle knob, and fix it at a convenient angle.





5.4 Cable Connection

Rear part of the unit has connectors, which can be efficiently interfaced with power, antenna and other cables.



5.4.1 POWER CONNECTION

2P connector located in the rear of the unit is used to supply power, which connects to Power supply as Red (+) and Black (-).

5.4.2 CONNECTS TO EXTERNAL SPEAKER

The unit has a Speaker built-in and it is possible to set up External Speaker as well. (8Ω/5W/MAX7W). 1P connector that is located in backward of the unit is a Speaker Connection Connector.

5.4.3 HOW TO SET-UP ANTENNA

1) STANDARD ANTENNA SET-UP

Most easy method for installation is to set up two or several antennas vertically having distance more than 4 meters one another.

2) CAUTION WHILE INSTALLING ANTENNA

The frequency range between Tx frequency and Rx frequency should be 4.6MHz when used for DUPLEX method. However, it can be occurred when installation is improperly made that the receiving sensitivity of other tranceiver is suppressed, and the distance range may be shortened when used for long distance communication or DUPLEX communication gets impossible.

Therefore please set up the antenna with following Cautions.

- Please use supplier's type of Tx/Rx Antenna if possible, when you happened to use other brand antenna, please use 50Ω with 150MHz band.
- Please use high quality antenna/power-cable than standard ones.
- Please set up at high location, if possible.
- Please set up at the location of more than 2M in vertical and 6M in horizontal apart from the surrounding structure, if possible.
- Please keep the antenna away from another transmit antenna.

For example, keep 4 meters away from other VHF antenna.

- Please ensure that installation should be made where there avoids from mechanic vibration and a rainstorm and connector parts must be waterproofed by using waterproof tape.
- While installed number of antennas simultaneously, cooper cables should be isolated by using steel pipe, if not, anyway keep the distance 30cm each other.

5.5 INTEGRATED WIRING

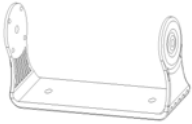
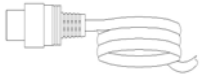
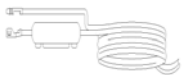
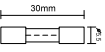
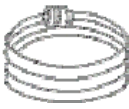
Please refer to installation drawing for interfacing machines each other.

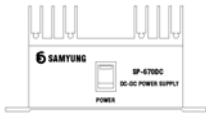
- 1) Please use cable with SAMYUNG supply or the one, which can be endureable for specified electric current for DC wiring.
- 2) Please tighten connectors of Tx/Rx antenna and speaker to prevent from ship's rolling and pitching.

6. PACKING LIST

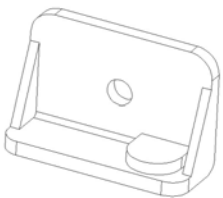
6.1 Domestic

VHF STR-6000D (Standard)

NO	Item	Feature	Size		Q'ty	Check	Remark
1	Main Unit		STR-6000D		1		SM-6000 INCL. Mic
			CODE NO	STR-6000			
2	Bracket				1		
			CODE NO	STR-6001			
3	Fixing Bolt		Ø5mm × 7		2		Attached to Main Unit
			CODE NO	STR-6002			
4	GPS Jack	 L=2m	RCA Jack		1	A-03	
			CODE NO	STR-6003			
5	DC Power Cable	 L= 2m			1	A-01	INCL.Fuze and Bolt
			CODE NO	STR-6004			
6	Steel Piece		Ø4 X 16		6		
			CODE NO	STR-594			
7	Fuze	 30mm	10A		2		Spare part
			CODE NO	STR-6010			
8	Manual		STR-6000D-MK		1		
			CODE NO	STR-6005			
9	Antenna		SAN-150		1		
			CODE NO	STR-585			
10	VHF Antenna Cable	 L=15m	RG-8U		1	A-02	PL-259 x 2
			CODE NO	STR-586			
11	ANT Bracket		78 X 200		1		
			CODE NO	STR-599			

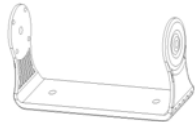
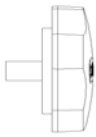
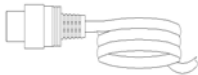
NO	Item	Feature	Size	Q'ty	Check	Remark
12	Cable Tie		DACT-300		20	
			CODE NO	STR-601		
13	U-Bolt		Ø63 X 80mm		2	
			CODE NO	STR-600		
14	Power Supply		SP-670DC		1	
			CODE NO	STR-6008		
15	Power Supply Fuze		10A		2	Spare part
			CODE NO	STR-598		
16	Power Cable	 L=3M	CVV SB-2.0 SQ x 2C		1	

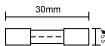
VHF STR-6000D (Option)

NO	Item	Feature	Size	Q'ty	Check	Remark
1	Speaker		SS-6000		1	A-04
			CODE NO	STR-6009		
2	FLUSH MOUNT (Bracket)		SMB-60		1	INCL. Bolt

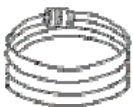
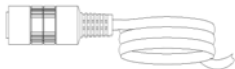
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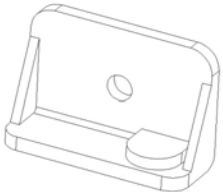
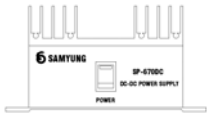
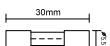
VHF STR-6000D (Standard)

NO	Item	Feature	Size		Q'ty	Check	Remark
1	Main Unit		STR-6000D		1		SM-6000 INCL. Mic
			CODE NO	STR-6000			
2	Bracket				1		
			CODE NO	STR-6001			
3	Fixing Bolt		Ø5mm × 7		2		Attached to Main Unit
			CODE NO	STR-6002			
4	GPS Jack	 L=2m	RCA Jack		1	A-03	
			CODE NO	STR-6003			

5	DC Power Cable	 L= 2m			1	A-01	INCL. Fuze and Bolt
			CODE NO	STR-6004			
6	Steel Piece		Ø4 X 16		6		
			CODE NO	STR-594			
7	Fuze	 30mm	10A		2		Spare Part
			CODE NO	STR-6010			
8	Manual		STR-6000D-ME		1		

VHF STR-6000D (Option)

NO	Item	Feature	Size		Q'ty	Check	Remark
1	Antenna		SAN-150		1		
			CODE NO	STR-585			
2	VHF Antenna Cable	 L=15m	RG-8U		1	A-02	PL-259 x 2
			CODE NO	STR-586			
3	Ant Bracket		78 X 200		1		
			CODE NO	STR-599			
4	Cable Tie		DACT-300		20		
			CODE NO.	STR-601			
5	U-Bolt		Ø63 X 80mm		2		
			CODE NO.	STR-600			
6	Speaker Jack	 L=2M	Mono Jack		1		
			CODE NO	STR-6006			

7	Speaker		SS-6000		1	A-04	
			CODE NO	STR-6009			
8	FLUSH MOUNT (Bracket)		SMB-60		1		INCL. Bolt
			CODE NO	STR-6007			
9	Power Supply		SP-670DC		1		
			CODE NO	STR-6008			
10	Power Supply Fuze		10A		2		Spare part
			CODE NO	STR-598			
11	Power Cable	 L=3M	CVV SB-2.0 SQ x 2C		1		